

Dairy Pipeline

Volume 24 Number 4, 2012

A Technical Resource for Dairy Manufacturers

Working out the “Red Whey”

Wisconsin really says it all, at least when it comes to Red Whey, a new recovery drink that is made in Wisconsin, with Wisconsin products, for Wisconsinites, namely UW-Madison student-athletes.

Red Whey (tart cherry juice and whey protein beverage) was developed thanks to a collaboration between the UW–Madison Athletic Department, the Wisconsin Center for Dairy Research (CDR), a Wisconsin whey processor and Wisconsin’s own Country Ovens–Cherry De-Lite.

“We are always looking for ways we can all work together, especially as a dairy state,” said John Dettmann, Director of Strength and Conditioning for the Badgers and one of the masterminds behind Red Whey. “We knew that we wanted to develop a natural, nutritious recovery drink for our student-athletes and with CDR, one of the world’s best dairy research institutions less than five minutes away, we were happy to have an opportunity to collaborate with someone on the UW campus as we assign value to those partnerships.”

Dettmann contacted CDR Dairy Ingredient Applications Coordinator K.J. Burrington to assist in formulating a natural recovery drink that would provide UW student-athletes with a delicious whey protein option that also meets the NCAA nutritional requirements. Dettmann also contacted Mike Johnson, President of Country Ovens, LTD, in Forestville, Wis., to see if he would be willing to provide

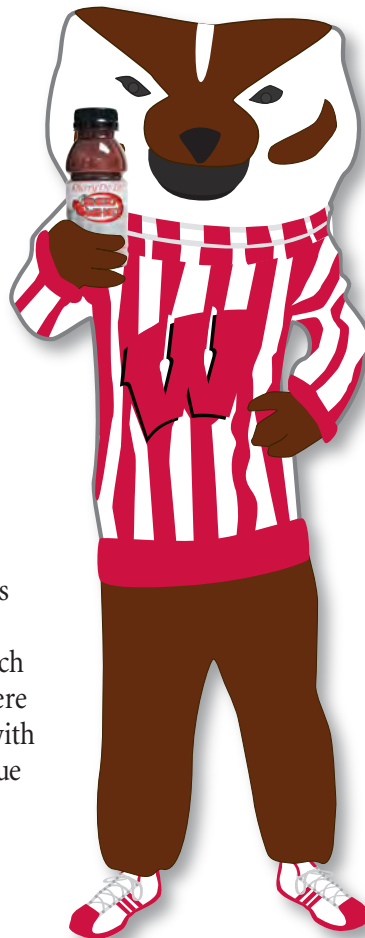
the cherry juice for the drink as well as manufacture the end product.

“We were so pleased to be approached by the UW Athletic Department,” said Johnson. “As a Wisconsin sports fan, farmer and manufacturer, I am happy to work with our partners at UW-Madison to develop a product for UW student-athletes, using Wisconsin ingredients.”

The end product, Red Whey, contains 100 percent tart cherry juice from Country Ovens and 12 grams of whey protein, making it an ideal recovery drink for athletes but also a locally made, natural, nutritious sports drink for the general public.

“There are very few products out there that contain 100 percent juice as well as a significant amount of protein,” said Burrington. “We’ve formulated a simple product with a clean label that contains a unique balance of amino acids that aid in muscle recovery.”

Amino acids are the building blocks of the human body aiding in everything from protein synthesis to energy production. Of the standard 22 amino acids present in the body, nine are essential amino acids, which means that they cannot be made by the body and must therefore be obtained through diet. Whey protein is unique in that it contains the highest





Measuring pH is a critical step in beverage development.

amount of essential amino acids, known as branch chain amino acids (isoleucine, valine, and leucine) found in food. Leucine is directly linked to muscle protein synthesis, which is an important part of recovery for all athletes. In fact, a 2007 study showed that as little as 10 grams of whey protein in a recovery drink will stimulate muscle protein synthesis (Tang et al., Appl Physiol Nutr Metab. 32:1132-1138, 2007).



K.J. Burrington CDR Dairy Ingredient Applications Coordinator and John Dettmann Director of Strength and Conditioning for the Department of Athletics

Red Whey also provides athletes with carbohydrates for energy, potassium for electrolyte replacement and nutrients available in the cherry juice. Johnson stated that cherry juice is being called the new ‘Super Fruit’, as it is high in anthocyanins (anti-oxidants) that may mitigate tissue inflammation and help reduce post-exercise muscle and joint pain.

“In the end, we have a great product that has been a big win for the UW Athletic Department as well as the state of Wisconsin,” said Dettman. “The product is outstanding. I think our biggest challenge will be keeping enough in stock.”

Note: Red Whey and Rapid Red (100% cherry juice) are distributed to the UW athletic department and available for retail at Country Ovens Ltd. For more information on purchasing the beverage call 1 800 544 1003 or email info@countryovens.com.



Want to learn more about whey and whey applications?

CDR Dairy Ingredient Applications Coordinator K.J. Burrington has prepared two information sheets available at www.innovatewithdairy.com. Technical Report: Whey Protein and Heat Stability discusses whey protein ingredient composition, whey protein functionality, controlling the size of protein aggregates and more. Technical Report: Sensory Properties of Whey Ingredients discusses whey composition, flavor characteristics, and techniques to formulate with typical whey flavors. For even more on whey be sure to check out the next Dairy Pipeline and consider attending the CDR Dairy Ingredients Application short course, held October 15-16, 2013.



Building Campaign Update

CDR would like to thank all of the individuals and companies who have donated so far to the Campaign to Secure Wisconsin's Dairy Future. **More than \$14 million of the needed \$16 million has been pledged** and every commitment, regardless of size is important to the success of this campaign.

Over the past few weeks, we have been reaching out to valued suppliers and partners of the dairy industry to ask for your support in our 25 x 40 initiative. This initiative encourages our industry's significant suppliers and partners to consider

donating to the Campaign to Secure Wisconsin's Dairy Future, with the goal of 40 of these companies donating at a level of \$25,000 or more.

Please remember that payments on donations (pledges) can be spread from 2012 through 2015 and that any donated equipment will count towards our fundraising goals. The UW-Madison is considered a charitable organization so gifts are tax deductible

Thanks again to all donors. Your generosity and leadership is greatly appreciated by all who will benefit from a state-of-the-art, world-class Wisconsin Center for Dairy Research.

A special thanks to those who have donated at the \$10,000 level or above and to our Campaign Co-Chairs Lou Gentine, Sargento Foods & Dave Fuhrmann, Foremost Farms.

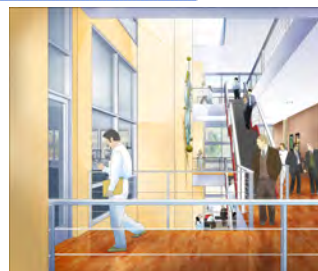
- 🍷 Agrimark
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- 🍷 AMPI
- 🍷 Arla Foods
- 🍷 Arthur Schuman
- 🍷 Baker Cheese
- 🍷 BelGioioso Cheese
- 🍷 Dr. Bill and Hallie Wendorff
- 🍷 Bob Bush
- 🍷 Brewster Dairy
- 🍷 Cheese Market News
- 🍷 Chr. Hansen
- 🍷 Crystal Farms
- 🍷 CS Facilities LLC/ Continental Dairy Products
- 🍷 Culvers
- 🍷 Dairy Connections Inc
- 🍷 Dairy Farmers of America
- 🍷 DSM
- 🍷 Eau Galle Cheese Factory Inc
- 🍷 Elanco
- 🍷 Ellsworth Cooperative Creamery
- 🍷 Emmi Roth
- 🍷 Fair Oaks Farm
- 🍷 Foremost Farms
- 🍷 Galloway Company
- 🍷 Glacier Transit & Storage
- 🍷 Glanbia/Select Milk Producers
- 🍷 Grande Cheese
- 🍷 Great Lakes Cheese
- 🍷 Hennings Cheese
- 🍷 Hilmar Cheese Company
- 🍷 Hydrite Chemical Co.
- 🍷 Ivarson Inc.
- 🍷 Jerry Dryer
- 🍷 Kerry Ingredients and Flavors
- 🍷 Klondike Cheese
- 🍷 Land O' Lakes Inc.
- 🍷 Masters Gallery Foods
- 🍷 Marathon Cheese
- 🍷 Nasonville Dairy
- 🍷 Nelson-Jameson
- 🍷 Organic Valley
- 🍷 Saputo Cheese USA
- 🍷 Sargento Foods
- 🍷 Sartori Foods
- 🍷 Schreiber Foods
- 🍷 Soft-Trace
- 🍷 Southwestern Wisconsin Cheesemakers Association
- 🍷 Steve Braun
- 🍷 Swiss Valley
- 🍷 TC Jacoby
- 🍷 Walter V. Price Family
- 🍷 Wisconsin Cheese Makers Association
- 🍷 Wisconsin Dairy State Cheese Company
- 🍷 Wisconsin Milk Marketing Board

Packaging Companies:

- 🍷 Curwood/ Bemis
- 🍷 Exopack
- 🍷 Georgia Pacific
- 🍷 Green Bay Packing
- 🍷 Great Northern
- 🍷 Sealed Air/Cryovac

For a complete list of donors and for more information on the building campaign or to donate please visit www.cdr.wisc.edu/building. For more information on Bill Wendorff's Short Course Million Fund Challenge please visit www.facebook.com/shortcoursemillionfund.

Renderings of the new Babcock Hall Facility



Dust Fires

According to a Chemical Safety Hazard Investigation Board (CSB) report, there have been more than 280 dust fires in U.S. industrial facilities over the past 25 years. While relatively rare, these incidents not only cause physical and financial damage, but they also tarnish the reputation of an industry. Thankfully, these incidents can be prevented through a better understanding of why dust fires and explosions occur and by following general guidelines set forth by the Occupational Safety and Health Administration (OSHA).

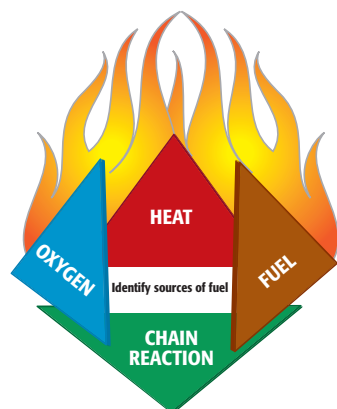
The first step in preventing a dust fire is to understand when and why a production facility fire occurs. To aid in this understanding, CDR Dairy Processing Technologist Karen Smith, Ph.D, will be publishing a manual on this topic, *Dust Fires and Explosions Associated with Dairy Powders*, which is due to come out in early 2013.

The goal of the manual is to provide basic information on dust fires and explosions while also providing an explanation of values for dairy powders that may be requested by customers, especially customers in Europe where information such as Minimum Explosive Concentration values are required by law.

“Defining the chemistry behind fire may seem basic, but understanding the fundamentals of a fire is an important part of prevention,” said Smith. “Basically, fire is the result of a chemical reaction between oxygen and a fuel such as wood or gasoline. Take wood for example, before wood can burn, energy in the form of heat must be applied to the wood until the wood reaches its ignition temperature. At that point, the chemical bonds in the wood begin to break and reform causing the wood to begin to release gases. The gases then begin to burn, which starts the fire. This may seem simplistic but it is important to understand that the fire will continue to burn until no additional gases remain or until extinguished by another means.”

The process described above can be summed up in the Fire Tetrahedron, a visual representation of the elements needed to start and maintain a fire. This diagram and its elements are described in detail in Smith’s manual.

Explosions are yet another issue that many plants will

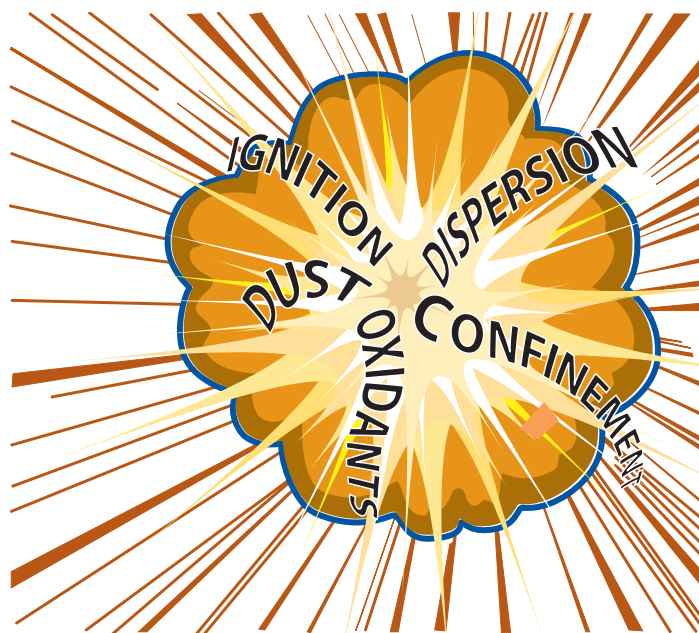


Fire Tetrahedron

need to take into consideration. Note that an explosion can be differentiated from a fire by two key elements, a rapid release of energy and the presence of dangerous overpressure. An explosion is defined as a sudden, rapid release of energy that produces potentially damaging pressure. It is this pressure that results in a blast wave, which is responsible for much of the damage caused by an explosion.

“It is important to note that the exact distance required for extinguishing a blast wave depends on the amount of energy produced and the environment surrounding the explosion,” said Smith.

In other words, materials such as dust do not compress well and therefore transmit the blast wave further causing greater damage. It is this fact along with several incidents throughout the industry that led to the initiation of the Combustible Dust National Emphasis Program (NEP) in 2007.



Parts of an explosion.

It is important to note that this NEP is not yet an OSHA standard and has not been passed into law by Congress, but OSHA has stated that non-compliance can result in fines. According to documentation available on the OSHA web page, the program will emphasize prevention and will focus on areas that are likely to contribute to a fire or explosion including, dust accumulations, ventilation systems, proper maintenance and adequate safety devices.

OSHA stated in a 2008 news release, “The purpose of this NEP is to inspect facilities that create or handle combustible dusts which cause intense burning or other fire hazards when suspended in air and can lead to explosions... under this



revised NEP, each Area OSHA Office is expected to inspect at least four facilities each fiscal year.”

Dust Fires and Explosions Associated with Dairy Powder will assist in explaining the many elements of dust fires and explosions and provide insight into dust fire and explosion prevention as well as ways to better prepare your company for inspections.



“Knowing and understanding your scorched particle number and other warning signs as outlined in the manual will be essential to maintaining a safe facility,” said Smith. “By gathering information you will be able to recognize potentially dangerous situations in your plant and take corrective measures to avoid a dust fire or explosion tragedy.”



Deposits on top of dryer where wall temperatures are highest.



Spray dryer nozzle with burn on.



Whey and whey heated past the point where it was dry.

Karen Smith’s *Dust Fires and Explosions Associated with Dairy Powders* will be available by January 2013. Please see www.cdr.wisc.edu (CDR News Hub) for updates.

WCMA Cheese Technology Tour

As a part of CDR’s continued outreach efforts, Cheese & Food Technologist Dean Sommer and Cheese Applications Coordinator John Jaeggi, recently attended the Wisconsin Cheese Makers Association’s (WCMA) Cheese Technology Tour in Ireland.



Ireland countryside

The tour provided participants with the chance to learn more about the cheese and dairy technologies being used in Ireland through educational plant and farm tours, meetings with the Irish Dairy Board and sessions with professors at the University College Cork.

“The WCMA cheese technology trip to Ireland was a wonderful way for John Jaeggi and I, along with a host of Wisconsin cheesemakers, to gain insights into the Irish



Ardrahan Cheese plant

cheese industry,” said Sommer.

“We were able to visit and tour numerous cheese manufacturing facilities as well as sample a range of different Irish cheeses and observe how their flavors differ from similar

cheeses made in the U.S. We also learned about the impacts of seasonal grass based dairy production and were able to meet with members of the Irish Dairy Board to hear more about their vision for the future of Irish cheese.”

More than 24 dairy industry professionals and their spouses attended this 10 day trip.

For more information on future tours or discoveries from this trip please see the Wisconsin Cheese Makers Association



Tour group

WCMA photos

website www.wischeesemakersassn.org/

The Basics of Annatto Explained

Resources: Niel Dinesen, Bill Wendorff Ph.D, Mark Johnson Ph.D, Dean Sommer

Background:

Annatto is one of the most commonly used natural food colors in the world. Records indicate that annatto has been used for more than two centuries but the specific details of this history are difficult to pin down. Annatto has been referenced as far back as 1796 in European texts and has been produced commercially since the 1870s. Today, annatto is widely used in the food business, but particularly in the cheese industry.

The use of annatto in the U.S. dairy industry may well have gotten its start in the butter industry, back in the 1800's and early 1900's when butter production was dominant over cheese production. The addition of annatto gave butter manufactured in winter months the same rich yellow color as butter naturally had in the summer months. We do not know exactly when or where annatto use began in the cheese industry, or exactly why for that matter. Some theories suggest that annatto use in the early days was a means to even out color variations in cheese due to the seasonal effects of differences in the carotenoid content of milk. These differences resulted in a rich creamy colored cheese in the summer months when most cows were pastured and a very white and less visually appealing cheese in the winter months. It is thought that perhaps consumer perception was that the creamy colored cheeses were richer in flavor and of higher fat content thus of greater value. Others theorize that the vibrant orange colored cheddars we see today were perhaps the result of a marketing effort that consumers rapidly accepted. Still others suggest that some countries used annatto to color their cheddars in order to differentiate their cheese from the cheddars made in other countries.

Cheeses that are frequently made with annatto, such as cheddar and colby, are commonly referred to as "colored" cheeses. Interestingly, within the U.S. there appears to be regional consumer differences in their preference for colored cheeses. On the East Coast of the United States white cheddar is preferred. Alternatively, in the Midwest and Western U.S. consumers seem to prefer colored cheddars.



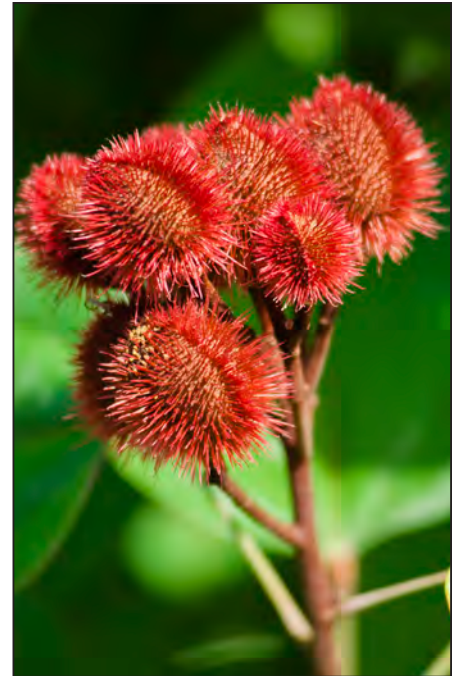
The use of annatto is not limited to "American" style cheeses

such as cheddar and colby. Frequently, small amounts of annatto are used in cheeses such as gouda, edam and havarti to give them a rich, creamy color. Furthermore, Muenster cheese in the U.S. is traditionally coated on its exterior with annatto to simulate the rich, orange color due to the presence of intensely colored surface ripened microorganisms found on smear ripened Muenster made in Europe.

Bixa orellana L:

Annatto is derived from the seeds of a tropical plant known as *Bixa orellana* L. The seeds are covered in a sticky orange or red pigment coating called *cis*-bixin which is generally extracted through

mechanical abrasion methods or solvent extraction. Mechanical abrasion methods include extraction with refined vegetable oil or extraction with dilute aqueous potassium or sodium hydroxide. In both cases, the mechanical abrasion and solution work to separate the pigment layer from the seed. Solvent



Annatto Tree Seed Pods

extraction methods include extraction of the annatto seed by using organic solvents. The extraction method used will affect the purity of the product, so different methods are employed to develop a more or less concentrated annatto. Regardless of concentration, annatto will not add any flavor or nutrients to the end product. Annatto can be labeled as a natural ingredient and is available in an organic version, but it cannot be labeled as a natural food color. Note that while annatto is derived from a plant and is "natural," it is not naturally found in cheese and therefore cannot be labeled "natural." For more on this, please see the FDA resources listed below.

Applications:

Annatto pigment is a stable food color that allows a 3-year-old cheddar to look like the day it was made. Annatto does, however, like all natural colors, have sensitivity to oxidation, from light and heat so it is important to utilize high grade ingredients, controlled processing procedures and storage methods.

Poor stability of annatto pigment in the cheese, especially fading over time, can be a sign that something more serious is going on with the chemistry of the cheese. For example, color loss evidenced by bleaching or pinking may mean that the product is experiencing light oxidization, a defect often caused by exposure to high-intensity fluorescent lights at retail. Light oxidization also causes the fat molecules within the cheese to oxidize which forms off-flavors. This is a chemical process which is difficult to detect visually without the help of annatto. The pigment in annatto is absorbed in the fat of the cheese, so when the fat begins to oxidize from exposure to light, the color begins to change as well. Typically, the color first appears pink as the yellow hues in annatto degrade faster than the red hues and ultimately the cheese appears white as even the red hues degrade, thus indicating a problem with the product. Typical flavor defects in these cheeses are often described as “cardboard like” or worse yet “lard like”. These are some of the most commonly found off flavor defects in cheeses at retail. It is especially common in non-vacuum packaged transparent wrapped cheese chunks due to the presence of excessive oxygen levels at the surfaces of these cheese packages which hasten the oxidation process.

In addition to the many benefits of annatto, there are a few issues to consider when using the pigment in a product. One concern for cheesemakers is the annatto pigment’s effect on whey. When annatto is used in the cheesemaking process, it also dyes the whey an orange tint which is undesirable. Many manufacturers choose to “bleach” the whey in order to return it to the original white color, but this process can be expensive and troublesome. Bleaching potentially can create off flavors in some whey products. Additionally, bleached whey products are not universally accepted by food processors. In particular, infant food formulators as well as numerous foreign export channels often do not accept bleached whey products for use as ingredients in various human foods..

Economy:

Annatto is one of the most cost effective natural colors, for two main reasons. First, pigment (cis-bixin) content on the seed is extremely high, as high as 4-5 percent pure. This is many times higher than carotene contents in vegetables, such as carrots and squash. Secondly, bixin is very powerful on a weight basis. One milligram of bixin has as much visual effect as 6 milligrams of synthetic yellow # 5 or #6. With a high concentration and powerful visual effects for very little material, annatto provides cheesemakers with an economical pigment.

Safety:

Annatto has a long history of safe use and a long list of reports on such. The early animal studies on use of the color utilized rather dilute preparations for the animal feeding

test so the recommended ADI(daily allowance index) by the International Codex committees was rather low at 0.065mg/day/kilo bodyweight. The International Annatto Suppliers addressed that issue by starting a new study in 1992. The whole program of testing and reporting took a decade but in 2007 the Joint FAO/WHO Expert Committee on Food Additives (JECFA) did issue new ADIs that are much higher and thus fully satisfactory for all uses. They issued different numbers for bixin and the details related to descriptions of the commercial preparations are still delayed, mainly by the complicated system of having different rules for each food category. This system is used by JECFA and also in Europe. The delay does not, however, question the results that high use levels of annatto in all food are perfectly safe.

Conclusion:

Annatto continues to find widespread use in the cheese and dairy industry. Many consumers prefer the color that annatto gives to their favorite cheeses and would certainly miss it if their favorite colored cheeses were no longer available. Continued vigilance in proper handling and display of cheese is necessary, however, in order to prevent the pinking and fading defects all too commonly seen in colored retail cheese. Packaging technical improvements that preclude light oxidation of cheese and annatto color would be a welcome relief for cheese marketers and their cheese manufacturing suppliers. Moreover, as whey products continue to evolve and gain even greater value there will likely be additional pressures on cheese manufacturers to make more white cheeses in order to lessen the need for bleaching treatments which decrease the marketability of these value added whey products worldwide.



References:

- James Smith, Ph.D, “Annatto Extracts Chemical and Technical Assessment” (2006)
- C.M. Hong, W.L. Wendorff and R.L. Bradleym JR, “Factors Affecting Light-Induced Pink Discoloration of Annatto-Colored Cheese,” Journal of Food Science Vol. 60, No.1, 1995
- Luis W. Levy and Diana M. Rivadeneira, “Anatto”

FDA

www.ecfr.gov Search, 73.30 Annatto extract

Other CDR sources:

- CDR Pipeline, Volume 13 #4, 2001
- CDR Pipeline, Volume 18 #4, 2006
- CDR Pipeline, Volume 19 #2, 2007

CDR Wins Federal Innovation Economic Development Grant

The Wisconsin Center for Dairy Research (CDR) at the University of Wisconsin-Madison has been awarded one of seven \$1 million i6 Challenge grants from the U.S. Department of Commerce to support an effort to commercialize research ideas that will positively impact economic development.



“We are pleased to receive such a prestigious award,” says CDR Director John Lucey. “The CDR strives to go beyond the research lab, partnering with industry to assist dairy companies in developing innovative products and processes that will help them grow. This grant will allow us to enter a new phase and provide for even greater partnership between CDR and the industry.”

CDR, along with state, industry and university partners, will use the federal funds to assist in the development and commercialization of the following concepts:

- New dairy products that are suitable for the fast-growing Asian markets
- Conversion of all cheese and dairy by-products into value-added nutritious ingredients that would help to grow U.S. whey exports
- Development of healthier, dairy-based alternatives for school lunch menus.

In addition to the above goals, the funds will also support the development of a technology portfolio and web-based portal which will contain resources for those looking to commercialize a research project, develop a new product or start a new dairy business.

The effort will get matching support from the Wisconsin Economic Development Corporation (WEDC), which will provide \$200,000 towards Wisconsin firms that seek to commercialize CDR dairy technologies, and from the Wisconsin Milk Marketing Board (WMMB), which will provide access to detailed consumer, marketing and product innovation databases and promotional support.

“This partnership between WEDC and UW-Madison is an example of what can be done to strengthen new business and entrepreneurial activity across the state from the ideas that come from our state universities,” says Paul Jadin, WEDC’s chief executive officer and secretary. “Our dairy industry provides great opportunities for business development and job creation through the product research and development that

comes out of the Center for Dairy Research.” The Obama Administration launched the i6 Challenge in 2010 to encourage economic growth and innovation. The program provides a new challenge to industry each year, with this year’s challenge focusing on innovation and entrepreneurship. The CDR was among seven winning Proof of Concept Centers that will be provided \$1 million over a two-year period to help reach its goals, and it is the first in Wisconsin to win such an award and the first food related group.

“The CDR has been an invaluable partner with WMMB for more than 25 years as we have worked together to build a strong dairy processing industry in Wisconsin and greater demand for Wisconsin milk,” says James Robson, chief executive officer of the WMMB. “This prestigious award will be a catalyst for taking our innovative efforts to another level. The CDR staff is well positioned to help companies commercialize the research concepts that occur at UW-Madison.”

Funding for the project will begin in October 2012 and continue through 2014. As part of the award, CDR Director Lucey attended the American



Economic Competitiveness Forum on University Innovation and Entrepreneurship on October 1 at the White House in Washington, D.C., where he had

the opportunity to directly engage senior White House and Administration officials on issues important to promoting entrepreneurship and innovation in institutions of higher education.

\$7 million

in projects across the country to promote innovation and help America’s entrepreneurs make the things the **rest of the world buys**. That adds up to \$19 million awarded since 2010 to promote lab-to-market strategies, spur small business development, and create the jobs of the future

\$7 million

investing in seven communities to help entrepreneurs out-innovate the world to **create American jobs**



E • D • A
U.S. ECONOMIC DEVELOPMENT ADMINISTRATION



DRI recognizes dairy centers at ADSA

CDR Director John Lucey, Ph.D, attended the 2012 American Dairy Science Association (ADSA) joint annual conference in Phoenix, Arizona where he helped to celebrate the 25th anniversary of the Dairy Research Center program at the Dairy Research Institute (DRI) reception.



From left John Lucey, Dr. Greg Miller DRI President and Executive VP National Dairy Council, Bill Graves Senior Vice President DRI



From left John Lucey CDR; Phil Tong, Cal Poly California Dairy Center; Lloyd Metzger, SDSU Midwest Dairy Center; Mary Ann Drake, NCSU SE Dairy Center; Don McMahon, Utah State Western Dairy Center; Dave Barmano, Cornell North Eastern Dairy Center

WMMB Expo

The Wisconsin Milk Marketing Board (WMMB) will be hosting the 7th annual WMMB Expos on:

- Tuesday, November 6 at the Crown Plaza, Madison
- Wednesday, November 7 at The Plaza Hotel, Eau Claire
- Thursday, November 8 at Tundra Lodge Resort, Green Bay

These expos will provide attendees with the opportunity to meet WMMB regional marketing managers and staff to learn more about WMMB projects available to manufacturers.

Be sure to come check out CDR's tabletop display and learn more about what CDR and WMMB can offer your business.

For more information, please contact Cathy Hart at chart@wmmb.org or Matt Mathison at mmathison@wmmb.org or call 800.373.9662.



Gina Mode elected VP

CDR Assistant Coordinator for Cheese Industry & Applications Gina Mode, was recently named Second Vice President of the Wisconsin Association



of Food Protection. WAFP is a non-profit group aimed at advancing the cause of food quality in Wisconsin through education, effective communication and networking opportunities.

UW Madison Day

CDR staff attended UW Madison Day in Marinette, WI on October 16 where we shared our permeate and whey research with the community. Attendees were able to taste permeate muffins as well as a whey beverage formulated at CDR.



CDR Welcomes New Staff:

Becky Surles, Associate Researcher

Becky Surles, an associate researcher with the Cheese Applications and Research group, will be responsible for analytical work as well as general research and student training at CDR. Becky has a Ph.D in Nutritional Sciences from UW-Madison and has been working in the industry for more than 10 years. She previously worked in several labs as both a research assistant and associate researcher and most recently worked for a non-profit organization working to improve and develop biochemical methods to improve the digestibility of compounds found in maize. Thanks to these experiences, Becky has a working knowledge of several experimental techniques including, high performance liquid chromatography, UV spectrophotometer and mathematical modeling of data using several software services. Becky enjoys working in the field as it offers her many new and exciting learning opportunities each day.



Becky Kalscheuer, Associate Research Specialist

Becky Kalscheuer, an associate research specialist with the Dairy Ingredients and Functionality group, is involved with much of the cultured product and beverage development that takes place at CDR. She also works with the Processing group to complete pilot plant projects. Becky has a degree in Food Science from UW-Madison and has experience in industrial engineering. With 10 years of experience in the food industry, she has come to enjoy the challenges and opportunities that come with finding new ways to use and make food ingredients.



Dr. Shinya Ikeda Joins Food Science Department



Dr. Shinya Ikeda recently joined the UW-Madison Food Science Department as an Assistant Professor of Dairy Foods. He received his Ph.D. in Agricultural Chemistry from the University of Tokyo in 1998 and spent several years working at North Carolina State University

and Osaka City University. More recently, Dr. Ikeda has worked as an R&D scientist and at Kagawa University and the University of Tennessee on various projects.

Professor Ikeda's interests include the structure of food and its properties. He is particularly interested in looking at the impact structures have on the nutrition, eating quality, health benefits, and safety of food. He has performed extensive research into whey proteins and carbohydrate polymers used in dairy foods. Professor Ikeda can be contacted at sikeda2@wisc.edu

CDR in the Media

Wisconsin whey muscles its way to global food importance www.jsonline.com/business/wisconsin-whey-muscles-its-way-to-global-food-importance-qm72pf1-172976931.html

Make a better-tasting, low-fat Cheddar www.dairyfoods.com/articles/88894-make-a-better-tasting-low-fat-cheddar

The Why Files <http://whyfiles.org/2012/the-science-of-cheese/>

The National Dairy Foods Research Centers program celebrates 25 years of research, education and innovation www.dairyfoods.com/articles/88770-the-national-dairy-foods-research-centers-program-celebrates-25-years-of-research--education-and-innovation



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Learn more about short courses, upcoming milestones and events, research updates and the latest news.

The 2013 Short Course calendar is available on the CDR website

CDR is proud to host more than 22 public and private short courses each year on the UW-Madison campus. With more than 1,000 industry attendees each year, CDR is honored that so many of you come to us for your dairy education needs. As our courses continue to grow, we encourage you to register early in order to secure a seat. We look forward to seeing you at one of our 2013 short courses

Short Course Million Fund

Are you a short course alumnus? Has your business been positively affected by CDR short course education? If so, please consider donating to the Short Course Million Fund which will help to make CDR's facilities world-class and improve dairy education for future CDR short course participants. For more information on Bill Wendorff's Short Course Million Fund Challenge please visit www.facebook.com/shortcoursemillionfund.

Short Course Million Fund
Challenge to the Industry

Join Bill Wendorff in contributing to the future of dairy education in Wisconsin.

The Short Course Million Fund offers short course graduates, alumni and friends of Babcock Hall and CDR the chance to contribute to the CDR/Babcock Hall building project which will in turn improve the dairy education experience of generations to come.

This challenge is an opportunity to join the dairy industry and its friends in contributing to a world-class dairy research facility.

For more information on how to donate visit:
www.cdr.wisc.edu/building | www.facebook.com/ShortCourseMillionFund

Donate today to secure Wisconsin's dairy future.

Wisconsin Center for Dairy Research

University of Wisconsin
First in Dairy Education Since 1890

Dairy Short Course

Continuing Education Opportunities for the Dairy Industry
January – December 2013 Calendar

- Milk Pasteurization → Jan. 8-9
- Batch Freezer Workshop → Jan. 15-17
- WI Dairy Field Reps → Feb. 12-13
- WI Process Cheese → Feb. 26-27
- Cheese Technology → Mar. 18-22
- The World of Cheese → Apr. 28-May 2
- Cleaning and Sanitation → May 7
- HACCP → May 8
- Applied Dairy Chemistry → May 14-15
- Cheese Grading → Jun. 4-6
- Milk Pasteurization → Aug. 6-7
- Cultured Dairy Products → Sept. 10-11
- Master Artisan Short Course → Sept. 24-26
- Cheese Technology → Oct. 7-11
- Dairy Ingredient Applications → Oct. 15-16
- Cheese Grading → Nov. 6-8
- Waste Water → Nov. 12-13
- Ice Cream Makers Short Course → Dec. 4-6

Sponsored by: Wisconsin Center for Dairy Research & Department of Food Science, University of Wisconsin
Detailed information on each short course; www.cdr.wisc.edu/shortcourses

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The Dairy Pipeline
Center for Dairy Research
1605 Linden Dr.
Madison, WI 53706
phone: 608/262-8015
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Wisconsin Center for Dairy Research
University of Wisconsin-Madison
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DAIRY PIPELINE

Center for Dairy Research
1605 Linden Dr.
Madison, WI 53706-1565

📞 608-262-5970 | 📠 fax: 608-262-1578

We welcome your questions and comments.

Send to: Bekah Gillespie, Editor

✉ rgillespie@cdr.wisc.edu | 📞 608-262-8015

Technical Reviewers:

K.J. Burrington, Mark Johnson, Dean Sommer, Karen Smith, Tom Szalkucki, Bill Wendorff

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Tim Hogensen

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www.cdr.wisc.edu

Short Course Calendar:

Cheese Grading Short Course, November 7-9

Waste Water Short Course, November 13-14

Ice Cream Makers Short Course, November 28-30

For detailed information on each short course

www.cdr.wisc.edu/shortcourses

Events

IDFA Dairy Forum, January 27-30, 2013, Orlando Florida